Translation

PCT/JP2004/003425

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH-2053-PCT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2004/003425	International filing date (*day/month/year*) 15 March 2004 (15.03.2004)	Priority date (*day/month/year*) 31 March 2003 (31.03.2003)
International Patent Classification (IPC) or national classification and IPC C07K 16/18, 1/18, 1/20, 1/22, 1/36		
Applicant KIRIN BEER KABUSHIKI KAISHA		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   ☒ Box No. I Basis of the report
   ☐ Box No. II Priority
   ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   ☐ Box No. IV Lack of unity of invention
   ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   ☐ Box No. VI Certain documents cited
   ☐ Box No. VII Certain defects in the international application
   ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15 March 2004 (15.03.2004)	01 February 2005 (01.02.2005)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/003425

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP04/003425

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-98	YES
	Claims	1-2	NO
Inventive step (IS)	Claims		YES
	Claims	1-98	NO
Industrial applicability (IA)	Claims	1-98	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents:
Document 1: Separating Clinical-grade Chimeric Antibodies from Serum-derived Immunoglobulins, (Moellering, B.J. et al.), BioPharm. 1990, 3(1), 34-38
Document 2: Separation of Polysaccharide-specific Human Immunoglobulin G Subclasses Using a Protein A Superose Column with a pH Gradient Elution System, (Leibl, H. et al.), Journal of Chromatography, 4 June, 1993, 639(1), 51-56
Document 3: JP, 5-310780, A (Toa Gosei Chem. Ind., Ltd.), 22 November, 1993 (22.11.93)
Document 4: WO, 99-64462, A1 (Statens Serum Institut), 16 December, 1999 (16.12.99)
Document 5: WO, 01-64711, A1 (Kyowa Hakko Kogyo Co., Ltd.), 7 September, 2001 (07.09.01)
Document 6: WO, 96-33208, A1 (Genentech, Inc.), 24 October, 1996 (24.10.96)

Explanation:

Document 1 describes, as a technique for separating and purifying a human chimeric antibody and a bovine antibody, a method in which a protein A column under a gradient between pH 8.9 and 3.0 is used (page 35, left column, paragraph 3 to right column, paragraph 1). It further describes, as a technique for separating and purifying a large amount of antibodies, the method in which anion exchange chromatography is followed by cation exchange chromatography (Fig. 4).

So, a person skilled in the art could have easily conceived of combining these processes in order. The procedure is not considered to have any particular effect.

Therefore, the subject matters of claims 1 and 2 do not appear to involve an inventive step in view of document 1.

Document 2 describes a method of purifying antibodies belonging to various subclasses of human immunoglobulin G wherein a protein A column under a pH gradient (8.1-2.8) is used.

Documents 3 and 4 describe a method of separating and purifying antibodies wherein anion exchange chromatography and cation exchange chromatography are used in order.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: V

Documents 5 and 6 describe a method of separating and purifying antibodies which uses hydrophobic interaction chromatography.

Therefore, a person skilled in the art could have easily conceived of purifying an antibody obtained by the method of document 1 further by hydrophobic interaction chromatography operation, to apply a solvent line and a gradient to the chromatography operation, and to set other purification conditions as required. These steps are not considered to have any particular effect.

Accordingly, the subject matters of claims 3-98 do not appear to involve an inventive step in view of documents 1-6.

The subject matters of claims 1-98 appear to be industrially applicable.